REMARKS/ARGUMENTS

Original claims 11 – 16 and new claims 22-25 remain in the application subject to examination

Claims 1 – 10 and 17 – 21 have been cancelled

Original claims 11 – 16 were rejected under 35 USC §103(a) as being unpatentable over U.S. Patent No 3,944,704 to C.L. Dirks in view of U.S. Patent No. 5,006,602 to B. Guerin et al and further in view of U.S. Patent No 4,752,204 to H. Kataoka.

Applicants' claimed invention relates to a method of transforming a pourous, polyvinylidene fluoride (PVDV) foam to a consolidated elastomer product typically having rubber-like properties such as a Shore A Durometer of about 60 to 90 and 1500% elongation. A more expansive listing of the physical properties demonstrated by Applicants' elastomer product is listed in specification paragraph [0029] on page 10 of the specification. The raw starting material of Applicants' transformation method is an open cell PVDF foam blank. PVDF foam is a proprietary material having 70% to 90% porosity and high permeability. This PVDF foam is known to the trade as ULTRAFLEX ® or KYNAR ®. Specification paragraph [0025].

Pursuant to Applicant's' method, a product blank of the PVDF foam, such as a ring gasket, is compressed in a heated molding press at about 300°F - 350°F. The compression ratio is about 5 to 7:1. This compressed, heated state is held for a time period sufficient to displace substantially all of the air from the foam cell spaces. Under such conditions of heat and pressure, the foam transforms to a stable, consolidated, translucent mass having the above said elastomeric properties.

U.S. Patent No. 3,944,704 to C.L. Dirks discloses a structural sandwich composition. In some trades, the Dirks structural sandwich is known as a "composite panel". At column 1, lines 41 and 42, Dirks aspires to:

> "less costly alternatives to many **metallic structures**. Nowhere is this promise greater than with respect to building bodies and components for use on land, sea or in the air."

Although Dirks discloses no structural properties for his composite material, the functional conclusion of Dirks' claim1 is revealing:

> "said resinous material having been cured while maintaining the layers of resilient material and high strength filaments under compression whereby the cured resinous material is disposed as a continuous and **rigid phase**, throughout all of said layers."

The basic Dirks method is to contiguously join two foam layers of differing compression resistance. The only example of suitable foam material offered by Dirks is polyurethane. Dirks specification column 2, line 62. A soft foam layer is impregnated with a thermosetting resin such as epoxy or polyester and compressed against a stiffer foam layer until the soft layer foam cells are saturated with resin and a resin excess is displaced into the stiff layer. When the resin cures, the formerly soft foam layer is structurally rigid and intimately bonded to the stiff foam layer. Nothing in the Dirks disclosure suggests that the end-product of the Dirks fabrication method has elastomeric properties. As a common noun in the English language, Webster's New World Dictionary of American English Third College Edition, Simon & Schuster, Inc., ©1988, defines "**elastomer**" as "a rubber-like synthetic polymer, as silicone rubber". The Examiner is invited to find and identify that exact phrase or passage in the Dirks disclosure that justifies the conclusion that Dirks has disclosed a "method of forming a consolidated **elastomer** product".

U.S. Patent No. 5,006,602 to B. Guerin et al is directed to PVDF as a consolidated semi-crystalline polymer suitable for fabricating pipe capable of carrying hydrocarbon flow streams. Guerin et al specification column 1, lines 16 – 24. The Guerin et al invention is a method of improving the long-term flexibility of PVDF by mixing, in the molten state, certain "elastomers" with the PVDF. This statement has **not said** that the PVDF was an elastomer but that an elastomer is mixed with the PVDF. "The most usual means of obtaining the composition consists of mixing, in the molten state, the two principle components **initially in the form of powders or granules**, in an extruder, a mixer with cylinders or any other adapted mixing

apparatus." Guerin et al specification, column 3, lines 19-22. The blended product is formed by extrusion. Guerin et al specification column 3, lines 43 – 45. The term "foam", as a material characteristic, is not to be found in the Guerin et al specification.

U.S. Patent No. 4,752,204 to H. Kataoka is directed to a process of improving the impact resistance of glazing material formed from PMMA acrylic sheet. Kataoka specification column 3, lines 7-12. The Kataoka process comprises the step of compressing the heated sheet by a ratio of 3:1 to 10:1 to one. **No "foam" is mentioned in the Kataoka reference**. From the four corners of the Kataoka disclosure, it is clear that the acrylic sheet described by Kataoka is a rigid, solid material having **no porosity and no permeability**. Nothing in the Kataoka disclosure suggests an "elastomer" material characteristic as that term is normally defined.

Applicant's independent claim 11 is directed to "A method of forming a **consolidated PVDF elastomer product** comprising the steps of (a) forming a product blank profile from a **PVDF foam** ....." Applicant's independent claim 14 is similar in claiming "A method of manufacturing a **sealing element for fluid system joints** comprising the steps of: (a) forming a blank profile of said sealing element from **PVDF foam** ....."

Applicant's claims 11-16 have been rejected on a construction of the Dirks, Guerin et al and Kataoka references that **does not include PVDF foam**, Applicant's basic starting material. Moreover, **none** of these references **teach a method of producing a consolidated elastomer** of any form. The rejection explanation asserts that Guerin et al shows "that it is known to carry out a method of compressing PVDF foam while heating the foam to about 400°F. " Reference is given to Guerin et al column 3, lines 58-60 and column 4, lines 3-5. Guerin et al states at column 3, lines 58-60:

> "By means of a mixer (BUSS PR 46) heated to 190°C., 10% by weight of each of the following elastomers are incorporated into PVDF (Foraflon 6000HD)."

At column 4, lines 3-5, Guerin et al states:

> "In a press with plates heated to 205°C., panels of 0.7 mm thickness are made from these granulated mixtures. The pressure exerted on the plates amounts to 70 kgcm² for 3 minutes."

Respectfully, Applicants' find no justification in either of these passages from the Guerin et al disclosure cited by the Examiner to support a conclusion that the described processes relate to a **PVDF foam** material. Similarly, Applicant's find no relevance between a material suitable for a pipe wall, as disclosed by Guerin et al, and an elastomer gasket material as disclosed and claimed by applicants'. Simply stated, **Guerin does not disclose a material transformation method comprising a step of compressing PVDF foam – for any reason or in any form.**

Applicants' invention, as described by original claims 11-16, was rejected under 35 USC §103(a) as unpatentable over a combination of diverse and substantially unrelated patent disclosures that fail to disclose anything even similar to the claimed starting material or the transformation product. The rejection purports to justify this **NON-ANALOGOUS PRIOR ART** combination as relying on art drawn from a "similar technical field". Respectfully, the "obvious" standard of 35 USC §103(a) non-patentability requires a "teaching" to combine disclosures from similar technical fields. Federal Circuit case law requires a showing that there is some "suggestion, teaching, or motivation" that would have led a person of ordinary skill in the art to combine the relevant art teachings in the manner claimed. *Pro-Mold & Tool Co. v. Great Lakes Plastics, Inc.*, 75 F.3d 1568, 1572 (Fed.Cir, 1996): *In re Dembiczak*, 175 f.3D 994, 999 (Fed Cir. 1999). A bald allegation that prior art is from a "similar technical field" is patently insufficient to justify a 35 USC §103(a) rejection.

The rejection rationale of Applicants' claims based upon the cited prior art offers absolutely no guidance to where or how the rigid foam composite disclosure of Dirks is "taught" to be combined in some way with a PVDF pipe disclosed by Guerin et

al. The Examiner alleges Kataoka and Dirks are combinable because they are mutually concerned with "methods of compressing polymeric material". Respectfully, Applicants' are not claiming "methods of compressing polymeric material". **Applicants are claiming a method of transforming PVDF foam to PVDF elastomer** Neither Kataoka nor Dirks disclose a PVDF foam or a PVDF elastomer. More importantly, neither Kataoka nor Dirks nor any conceivable combination of Kataoka and Dirks teaches the **transformation of a polymer foam, in any form, to a consolidated elastomer.**

Applicants' new independent claim 22 describes their invention as "A method of forming a monolithic PVDF elastomer" consistent with the elected Group II invention definition as "drawn to a method of forming a consolidated PVDF elastomer product , classified in class 264, subclass 239". New claims 23-25 are dependent from new claim 22.

New claim 22 describes Applicants' PVDF forming method as comprising the steps of placing a PVDF foam form in a heated molding press. The press is volumetrically compressed by a ratio of 5:1 to 7:1 while heating the form between 300F and 350F until the form is transformed to a consolidated elastomer having a Shore A Durometer of about 60 to 90. Specification paragraph **[0029]**.

In view of the foregoing amendments and argument, Applicants' respectfully request the Examiner's favorable reconsideration and allowance of claims 11-16 rejection and a favorable consideration and allowance of applicant's new claims 22-25.

Respectfully Submitted,

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W. Allen MacConnell